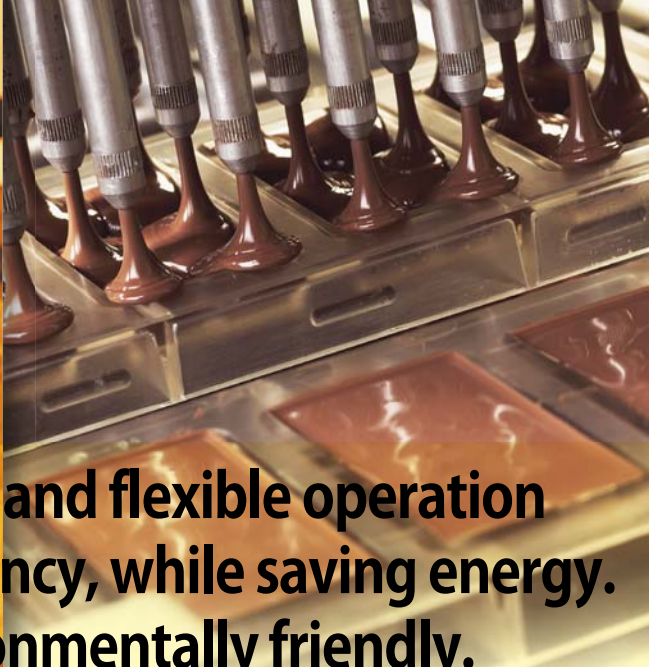


SANWA High Speed Sheet Shutter

QUICK SAVER





Rapid and flexible operation efficiency, while saving energy. Environmentally friendly.

SHEET SHUTTER **QUICK SAVER**

Facilitates frequent handling of goods, yet prevents entry
Sanwa high speed sheet shutter “Quick Saver” keeps
improve work efficiency. With enhanced safety and
resetting and repair, factories and warehouses will have

For compliance
with HACCP
and GMP.

Application

- Factory service doors
- Partitions in factories
- Cargo delivery/shipping area in warehouses
- Service entrances of supermarkets

HACCP : Stands for Hazard Analysis Critical Control Points. This is a scientific management scheme for improving safety, by analyzing causes of hazards throughout the food manufacturing process and specifying critical control points.

G M P : Stands for Good manufacturing Practice. It stipulates requirements and management items for manufacturing, to provide safe and high quality medicines and medical equipment.

Better Work Efficiency

Rapid opening and closing. Reduces waiting
time of work vehicles. The door sheet,
disengaged upon impact, can be reset easily.

Optimize For Work Environment

Prevents wind, dust and insects from entering*, and stabilizes air conditioning, to maintain quality of processed goods. In addition, odors are confined if generated in the work place.

*Require consideration as the whole building to prevent wind, dust and insects from entering.

improves work

of foreign substances. Furthermore, air conditioning steady. Faster door ingenious features for easy and rapid more advanced doors.



Quick Saver is airtight and operates rapidly, allowing very little air to flow in or out. Thus climate is controlled effectively, reducing energy loss.

Environment



References

Insect repellent red sheet

Flexy
SR-F



QUICK SAVER

GR-W

Translucent sheet



Interlocked with a belt conveyor/
Insect repellent orange sheet

GR-S

Insect repellent red sheet

Flexy
SR-N

NR-S

Interlocking operation/
Translucent sheet





**Flexy
SR-W**

Deep orange sheet

KR-W

Insect repellent orange sheet



KR

Translucent sheet



**Flexy
SR**

Installed with a thermal insulating
overslider/
Insect repellent orange sheet

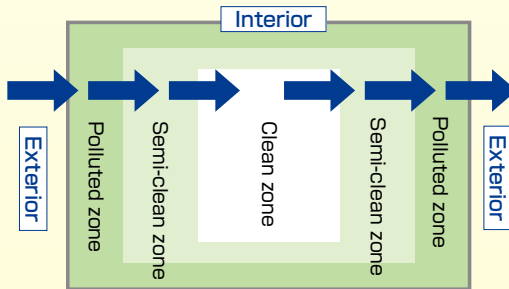
Zoning for food factories

Concept of zoning

Safe production environment and zoning

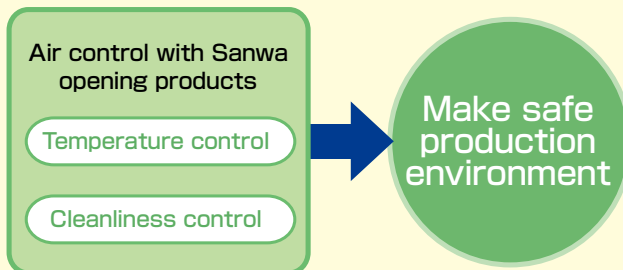
It is recommended that the facility of the food factory should be divided into "polluted zone", "semi-clean zone" and "clean zone" by zoning. The basic point to make safe production environment is to zone each space, and to maintain air conditioning and cleanliness. In other words, the key is how you control air well.

■ Basic concept Material/products flow



Importance of the opening

An proper function is necessary for the opening to maintain ideal air conditioning and cleanliness even if you introduce the facilities which control interior and exterior atmospheric pressure to control air. Therefore, Sanwa Shutter has a lot of products suitable for air control and antibacteria. And we recommends zoning using these opening products.



Performance required for opening products

To make zoning more efficient, it is necessary to install a product with the following performance to the opening.

High airtight



The shutter prevents the influx of outside air at the time of the closedown and maintains interior air conditioning. At the same time, it prevents dust from exterior.

Ultra-high speed



The shutter decrease the quantity of ventilation at the time of the opening/ closing and avoid waste of the air conditioning cost. It minimizes the entrance of foreign material.

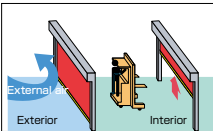
Antibacteria



The shutter prevents the growth of bacteria.

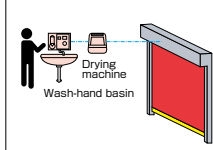
Interlocking system

Interlock operation



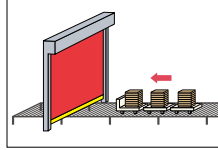
In the interlocking operation, multiple Quick Savers are linked to lock all the other Quick Savers in the closed state when any one of them is open even a little and to ensure that any others of the Quick Saver should be closed. This is the most suitable system suitable to prevent the influx of outside air and maintain air conditioning.

Interlocking system with wash-hand basin



In this system, you can set the Quick Saver not to open before washing your hands. This contributes to thorough hygienic management.

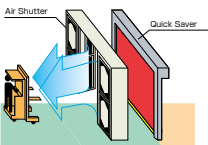
Interlocking system with the belt conveyor



The Quick Saver interlocking with the belt conveyor opens and closes with a flow of the baggage. This has the advantages of increased working speed and efficiency interlocking movement with Quick Saver and Air Shutter.

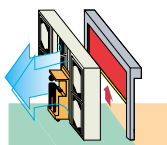
Interlocking movement with Quick Saver and Air Shutter

The Air Shutter starts up



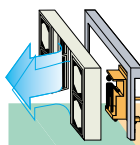
The Air Shutter starts up.

Opening the Quick Saver



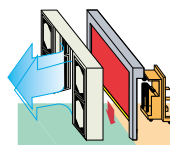
The Air Shutter forms a barrier, and the Quick Saver opens.

Passage



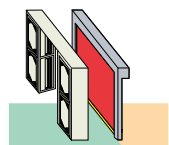
When human or vehicles pass the opening, the Air Shutter prevents dust and insects from entering.

Closing the Quick Saver



The Air Shutter forms a barrier until the Quick Saver closed.

The Air Shutter stops



The Air Shutter stops. This smooth system realize effective insect repellent and dust prevention.

Products Lineup



Type	Flexy SR	Flexy SR-F	Flexy SR-W	GR-S	GR-W	KR
Page	P20	P22	P24	P26	P28	P30
Use	Both interior/exterior					
Ultra-high speed	●	●				
High airtight	●	●	●			
Wind resistance						●
Free of ribs	●	●	●			
Pipe structure				●	●	●
Brakeaway (Note)	●	●	●	●	●	●
Automatic reset (auto-reset)	●	●	●			
Easy reset (manual)				●	●	●
Inclined hood/stainless steel guide rail		●				
Wide opening			●		●	
Slow start & Slow stop	●	●	●	●	●	●
Obstacle detection	●	●	●	●	●	●
Divided bottom sheet (optional)				●	●	●
Pipe w/ roller shaft				●	●	●
Recyclable sheet	●		●	●	●	●
Compact installation						
Single phase 100VAC (Optional)	●	●		●		
Maximum opening	[Interior · Exterior] W6.0×H5.5(m)	[Interior · Exterior] W6.0×H5.5(m)	[Interior] W10.0×H5.5(m) [Exterior] W8.0×H5.5(m)	[Interior · Exterior] W6.0×H5.0(m)	[Interior] W10.0×H5.5(m) [Exterior] W8.0×H5.5(m)	[Interior · Exterior] W5.0×H5.0(m)

(Note) Depending upon impact magnitude and direction, the sheet and ribs may be damaged. The sheet may also be damaged when struck by a sharp projection.

● The sheet may be damaged to be subject to strong winds exceeding the operable wind load limit. If Quick Saver is installed in an exterior opening, you should also install a rolling shutter that withstands strong winds.

(When typhoons approach, be sure to close the rolling shutter provided by the side of Quick Saver with the sheet fully open.)



KR-W	Flexy SR-N	NR-S
P32	P34	P36
Interior		
	●	●
	●	
●		
	●	●
●		
●	●	●
	●	
●		●
●		
●		
●		
●	●	●
	●	●
	●	●
[Interior・Exterior] W8.0×H5.5(m)	[Interior] W4.0×H4.0(m)	[Interior] W4.0×H4.0(m) [Exterior] W2.2×H2.3(m)

- Closing speed and segmentation of the use solely for human access

	Closing speed	the use solely for human access
Free of ribs	0.8m/sec or less [H>2.8m] 0.5m/sec or less [H≤2.8m]	○ (excluding SR-W)
Pipe structure	0.5m/sec or less without reference to the height	×

- Restriction of the operation method by the difference of the passage of human or the vehicle (detective object).
(See P.19 for operation mode.)

In case of the passage of only human or human pushing a cart.	Alternate or Automatic operation (Semi-automatic operation is not possible.)
In case of the passage of the vehicle.	All operation method is possible.
In case of the passage of only human or human pushing a cart by using activation switch.	Alternate operation only (Semi-automatic operation is not possible.)

Energy saving

A difference appears so much only by the speed and airtightness rising.



Eco-mark authorization *

"Sanwa's Quick Saver" received Eco-mark authorization as the environmentally conscious product which contributed to energy saving by giving air conditioning efficiency with ultra-high speed and high airtight performance. *The products are 4 types of Flexy SR/SR-F/SR-W/SR-N.



Sanwa Shutter provides energy saving simulation data to the conditions of your building. Please use it by all means.

Simulation of translucent insect repellent sheet

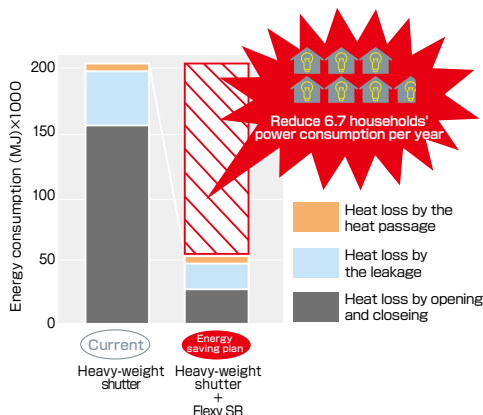
[Condition] ■ Opening size: W4×H4 (m)

- Interior preset temperatures of air conditioners: summer season 26℃, winter season 22℃ (heating and cooling system by city gas)
- Operating time of air conditioners: summer/winter season 8hours/day, 20days/month, summer season 2months, winter season 4months
- Outside air temperature summer season 30℃, winter season 0℃
- Outside wind speed summer season 2m/sec, winter season 3m/sec

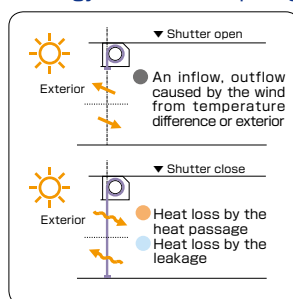
	Current While heavy-weight shutter open for 20minutes in the morning and another in the afternoon, forklift pass 15 times on each term. [Only heavy-weight shutter]	Energy saving plan Heavy-weight shutter is installed with Quick Saver. Only when forklift pass, Quick Saver open and close 15cycles on each term. fully open time 10 seconds/cycle [Installed with Quick Saver]	
		Energy loss	
Annual energy loss	204,000MJ	▲ 151,000MJ	53,000MJ
Cost	700,000Yen	▲ 520,000Yen	180,000Yen
Amount of CO ²	12,900kg	▲ 9,600kg	3,300kg

* Above number is calculated in our own method based on the assumptive case and is not guarantee numerical value.

Energy-saving effect



Energy loss from the opening



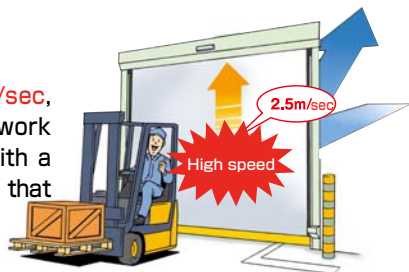
Efficiency upgrade

※ See P.6 "Product Lineup" for target products.



Ultra-high speed

The door opens at ultra-high speed, **2.5m/sec**, highest among sheet shutters. Improves work efficiency, while reducing risk of collision with a vehicle. The sheet end is provided with rollers that prevent the sheet from being disengaged from the guide rail, improving operation.



Breakaway

Upon impact, the sheet disengages from the guide rails, thereby absorbing impact force and minimizing damage.

※ Depending upon magnitude and direction of impact, the sheet and ribs may damage. The sheet may also damage when struck by a sharp projection.



▲ "Breakaway" The sheet disengages from the guide rails to avoid damage.



▲ Wind up the sheet once.



Automatic reset

The disengaged sheet, if once wound up, automatically resets onto the guide rail track.

※ If the sheet is blocked upon impact, stop operation. In this case, press the error release button on the control panel, and move the sheet to the upper limit in manual mode, then the sheet resets onto the guide rails.



▲ When the sheet is wound up to the upper limit.



▲ "Automatic reset"

- "Breakaway" and "Automatic reset" work even when there is a problem. Do not forcibly strike the sheet to detach it from the guide rails, because this will damage the guide rails and sheet.
- The sheet disengages when it is exposed to wind stronger than the specified wind load. When the sheet violently flaps in a strong wind, it will not rest automatically. If this happens, press the stop button on the control panel, and press the manual operation button. After the sheet stops flapping, press the open button. When the sheet rises to the upper limit, it resets.

Non-detective function in the parallel direction

When a person or a vehicle passes the front of the Quick Saver parallel, this function does not detect it. You can keep air conditioning in the room by opening Quick Saver only when you go in and out.

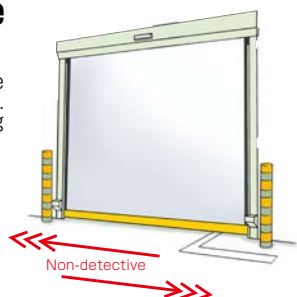
※ Depending on kind and route of the object, the sensor may detect it.



▲ Infrared sensor (DA-6500only)



▲ Microxave sensor



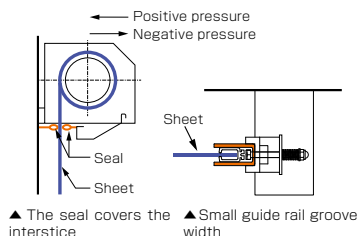
High airtight

Prevents heat loss and dust penetration.



※ See P.6 "Product Lineup" for target products.

The sheet is not equipped with ribs in the middle of sheet, reducing the interstice. A weight prevents the bottom from floating up. A brush is mounted on the bottom edge. All these features improve air-tightness.



■ Airtight properties

Pressure difference [Pa]	Air leak q ($\text{m}^3/\text{h}\cdot\text{m}^2$)	
	Positive pressure	Negative pressure
10	28.2	22.3
30	51.2	35.6
50	67.4	47.7
100	95.8	69.6

in-house test data
Test sample: Flexy SR Size W4×H3 (m)
Except for brush on the bottom



Wind resistance

You can open and close Quick Saver even in "strong wind" (wind speed 15-20m/sec).



Up until now, when strong wind blew, the sheet was bend and might stop on the way. But KR/KR-W solved the problem so far. **Wind resistance in closed position realizes 390Pa (wind speed 25m/sec)** by making pipe thick. Furthermore, we improved to close smoothly even if a seat billow out. As a result, wind resistance became **250Pa (wind speed 20m/sec) of the industry most high level**. It is available in a factory and a warehouse with high opening and closing frequency.

Repair

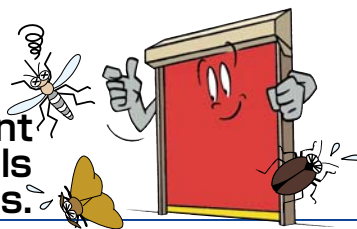
GR-S/GR-W can make wind pressure specifications equivalent to KR only by the exchange of the sheet. We recommend that you repair these two types installed in strong wind areas of a coastal place or the among the mountains.

*The size more than design ranges of KR/KR-W is not possible.

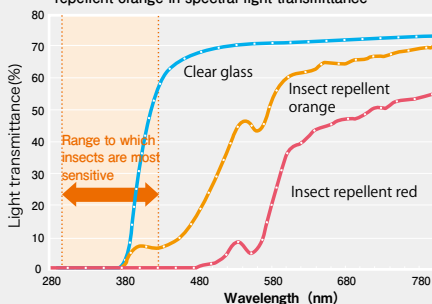


Insect repellent

"Insect repellent red" sheet repels 90% of insects.



▼ Comparison of clear glass, insect repellent red and insect repellent orange in spectral light transmittance



◀ Concept of insect repellent feature

The light wavelength to which most insects are most sensitive is around 350 nm in the ultraviolet range. The translucent insect repellent sheet shields this spectral range, creating a blind zone for insects.

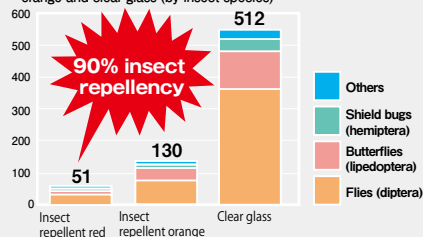
▼ Test to compare the insect repellent translucent sheets



This photo shows the test to determine the effectiveness of each type of sheet in repelling insects. The specimens are a red sheet, clear glass and orange sheet from right to left.

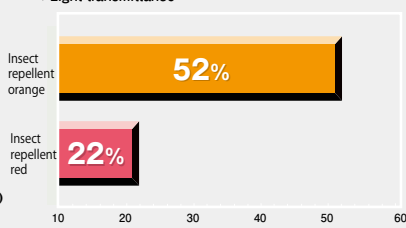
$$\text{Insect repellency (\%)} = \left(1 - \frac{\text{Number of insects reaching each sheet}}{\text{Number of insects reaching the clear glass}} \right) \times 100$$

▼ Comparison in number of insects between insect repellent red, orange and clear glass (by insect species)



※ Results of tests by the Japan Environmental Sanitation Center

▼ Light transmittance



※ The light transmittance was measured according to JIS Z 8722.

*Insect repellent varies according to the environment of the installation place.

Recyclable Sheet



※ See P.6 "Product Lineup" for target products.

We adopt industry's first polypropylen sheet ; environment-friendly recyclable sheet.

Polypropylen sheet

- The substrate cloth and surface are made of the same recyclable material.
- Free of plasticizer, no vinyl odor.
- Endurable antistatic treatment.
- Does not generate chlorine dioxin upon combustion.

Feature

※ See P.6 "Product Lineup" for target products.



Free of ribs

Lightweight flexible sheet produces less impact upon collision.
The closing sheet reverses upon impact.



Easy reset (manual)

The sheet disengaged by the breakaway function can be easily reset, needing no special knowledge or technique.



(Note) On the occasion of restoration, please turn off the control panel by all means and operate according to the instruction manual.

GR-S

KR

Upon impact, the roller shaft breaks disengaging the sheet from the rail. Replace the broken shaft with a spare (4 roller shafts supplied as standard), and engage the sheet with the rails.

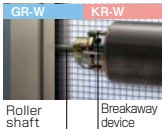


▲ Spare roller shaft

GR-W

KR-W

Upon impact, the roller shaft disengages and the sheet runs off the rail. First insert the roller shaft into the breakaway device, and reset the sheet in the rail groove.



Roller shaft

Breakaway device

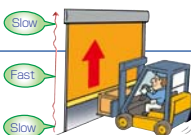
NR-S

Manually push the bottom guide block completely into the rail groove.



Slow start and slow stop

Slow speed when starting and stopping. This speed profile alleviates loads upon Quick Saver and the building.



Pipe with roller shaft

Pipe with roller shaft reduces friction on the guide rail for smooth operation even under strong wind.



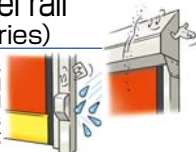
Pipe structure

Less deflection of the sheet even in a windy day and produces less gap to the floor.



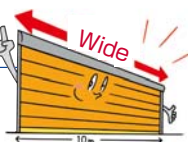
Inclined hood/ Stainless steel rail (ideal for factories)

Stainless steel guide rails washable with water. The head and control panel are provided with inclined hoods where less dust accumulates and sticking substances are easily found.



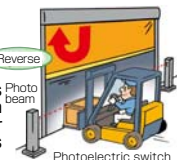
For wide openings

Ideal for wide openings up to 10 m wide x 5.5 m high (interior) and 8 m wide x 5.5 m high (exterior).



Obstacle detection

When an obstacle interrupts the photoelectric switch beam, the closing shutter automatically stops or reverses and goes up after stopping, thereby ensuring safety.



● The photo beam may not be interrupted by an obstacle depending on its size or position. Before closing the shutter, make sure that no person or obstacle is near the door. Otherwise, physical injury may occur, or the object may be broken.



Divided bottom sheet

The sheet is divided into two parts. The lower part (about 1.5 m), more prone to damage, can be easily replaced, reducing cost and time for repair.



● You can use mending tape (optional) for repairing small damage.



Compact installation space

Can be installed in a small space, ideal for providing higher clear opening.



Single-phase 100 VAC type (optional)

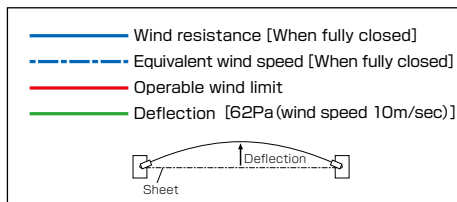
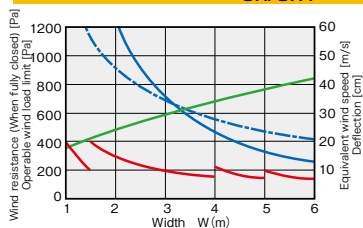
Applicable to conditions at various sites. This type can operate with 100 VAC power source.

Wind Resistance

SHEET SHUTTER **QUICK SAVER**

- In locations subject to strong winds exceeding the operable wind load limit, the sheet may be damaged. If Quick Saver is installed in an exterior opening, you should also install a rolling shutter that withstands strong winds.
(When typhoons approach, be sure to close the rolling shutter provided by the side of Quick Saver with the sheet fully open.)
 - In locations subject to strong winds, pipe structure model is suitable. Among them, we recommend KR and KR-W, featuring higher wind resistance (when fully closed) and operable wind load limit.
 - Select a suitable model of Quick Saver that has wind resistance (when fully closed) and operable wind load limit.
 - Wind resistance (when fully closed): wind load the shutter can withstand with the sheet fully closed. When the wind load exceeds this limit, be sure to close the rolling shutter provided by the side of Quick Saver with the sheet fully open. Otherwise, the sheet could be damaged.
 - Operable wind load limit: the maximum wind load under which the Quick Saver can operate. When the wind load exceeds this limit, the sheet may stop during closing, or may run off the guide rail, resulting in an accident.
- ※ The following graph is calculated value and is not a guarantee value.

SR/SR-F

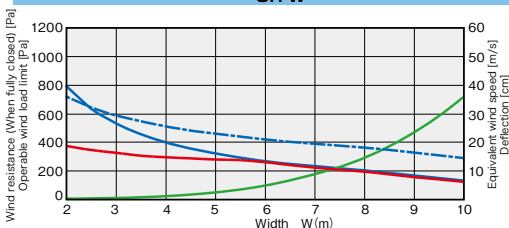


SR-W

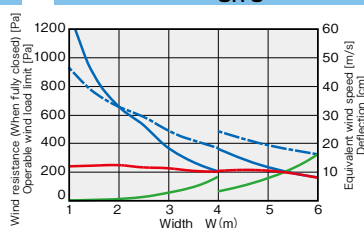


- Even under low wind load or small wind pressure difference between interior and exterior, the sheet deflects. When Quick Saver is interlocked with a conveyor, it should be designed and installed properly to prevent contact with the conveyor.

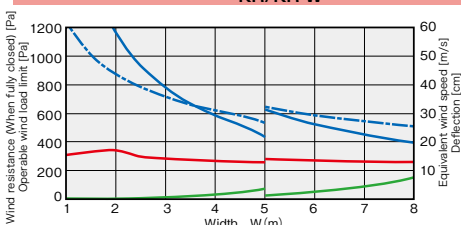
GR-W



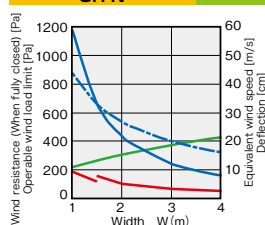
GR-S



KR/KR-W



SR-N



NR-S

- Even under low wind load or small wind pressure difference between interior and exterior, the sheet deflects. When Quick Saver is interlocked with a conveyor, it should be designed and installed properly to prevent contact with the conveyor.

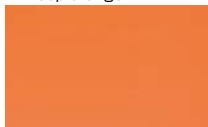
Sheet Lineup

● Colors shown here may differ from the actual sheets.

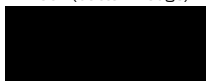
Polypropylene sheet

This sheet is recyclable and antistatic. (See P11)

▼ Deep orange



▼ Black (bottom/ edge)

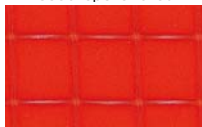


※ Only for deep orange
(Specification)
● ecotex 1200 · Black
● Flameproof rated CO 0050032

Translucent insect repellent sheet

This sheet have effect of insect proof. (See P11)

▼ Insect repellent red



※ Antibacterial type optional.
※ Antibacterial type is not covered by Eco-mark.

▼ Insect repellent orange



※ Antibacterial type optional.
※ Antibacterial type is not covered by Eco-mark.

Clear sheet

Standard type for natural lighting.

▼ Clear

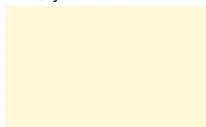


※ Antibacterial type optional.
※ Antibacterial type is not covered by Eco-mark.

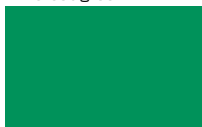
Non-inflammable sheet

Glass fiber substrate treated with polyvinyl chloride for excellent durability. Three colors are available.
(The color of the bottom is same with non-inflammable sheets.)

▼ Ivory



▼ Forest green



▼ Gray



Orange sheet

Blindfold effect.

▼ Orange



Mesh sheet

Good aeration.

▼ Mesh (Gray)



※ Mesh sheet is not covered by Eco-mark.

Bottom sheet

The bottom is yellow for easy identification.

▼ Yellow



※ Antibacterial type optional.

(Specification)
● Ultra max U-11/yellow
● Flameproof rated F-05043
or
● E turbo set yellow
● Flameproof rated F-56011
(Antibacterial type)
● TU-3000/antibacterial yellow
● Flameproof rated F-13092

Sheet specification

	Deep orange	Insect repellent red	Insect repellent orange	Clear	Non-inflammable (Ivory/Forest green/Gray)	Orange	Mesh (Gray)
Substrate cloth material	Polypropylene	Polyester	Polyester	Polyester	Glass fiber	Polyester	Polyester
Surface material	Polypropylene	Flexible PVC	Flexible PVC	Flexible PVC	Flexible PVC	Flexible PVC	Flexible PVC
Surface treatment	Polypropylene coating	Acrylic / fluorocarbon resin coating	Acrylic / fluorocarbon resin coating	Acrylic / fluorocarbon resin coating	Acrylic / fluorocarbon resin coating	—	—
Translucent rate (%)	—	22	52	65	—	—	—
Thickness (mm)	0.83	0.9	0.9	0.9	0.53	0.55	0.7
Fire performance	Flameproof rated E-13-40491	Flameproof rated E-9-42977, E-18-43987	Flameproof rated N-0845, E-9-42977, E-18-43987	Flameproof rated N-0845, E-9-42977, E-18-43987	Non-inflammable rated NM-0507	Flameproof rated E-9-42977, E-18-43987	Flameproof rated N-0845, E-18-43987
Feature	Prevention of static charge	Insect repellent	Insect repellent	Daylighting	Non-inflammable	Unclearity	Opaque Mesh (good aeration)
Option	—	Antibacterial type	Antibacterial type	Antibacterial type	—	—	—
Adaptable type	SR	○	○	○	○	○	×
	SR-F	×	○	×	×	×	×
	SR-W	○	×	×	×	×	×
	GR-S	○	○	○	○	○	○
	GR-W	○	○	○	○	○	×
	KR	○	○	○	×	○	×
	KR-W	○	○	○	×	○	×
	SR-N	○	○	○	○	○	×
	NR-S	○	○	○	○	○	×

● Flame rated: according to Article 4-3, Japanese Fire Law Enforcement Regulations. ● Non-inflammability rated: according to Item 9, Article 2, Japanese Building Standards Law.
● Windows can be provided as option except for non-inflammable sheets and mesh sheets. See P15.
※ Since the sheet is made of soft polyvinyl chloride, it may whiten if it absorbs humidity for a long period of time, but whitening vanishes when dried.

Window (optional)

SHEET SHUTTER **QUICK SAVER**

Since inside becomes bright by entering the light and the prospect becomes good, safety increases.

Clear window sheet (for clear sheet)



* Window cannot be provided as option for non-inflammable sheets and mesh sheets.
* There is no antibacterial window sheet.

Insect repellent window sheet (for polypropylene sheet/ translucent insect repellent sheet/ orange sheet)



Wide window

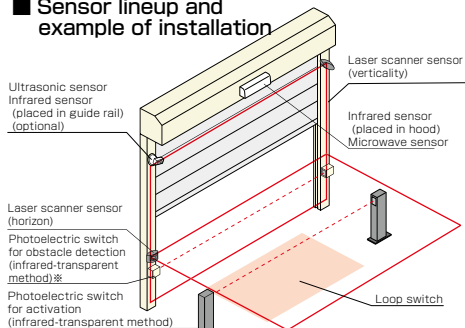
	SR / SR-F	SR-W	GR-S / GR-W
Window sheet lineup	Clear window sheet (for clear sheet) Insect repellent window sheet (for polypropylene sheet/ translucent insect repellent sheet/ orange sheet) *SR-F is Insect repellent window sheet only.	Insect repellent window sheet	Clear window sheet (for clear sheet) Insect repellent window sheet (for polypropylene sheet/ translucent insect repellent sheet/ orange sheet)
Bonding	Welding Hook and loop fastener (optional) *Polypropylene sheet and orange sheet are hook and loop fastener only.	Welding only	Welding Hook and loop fastener (optional) *Polypropylene sheet are hook and loop fastener only.
Window size	W690×H390(mm) Wide windowH560mm * In case of the wide window of this type, both side ends is standard sheet.	W1600×H560(mm)	W690×H390(mm)
Window installable range	1.7m≤H	2.1m<H	(GR-S)1.97m<H (GR-W)2.17m≤H
Window number	1.5m≤W<2.5m : 1 piece 2.5m≤W : 2 pieces *W<1.5m : The window is not attached. Wide window (for polypropylene sheet) 1m≤W≤5m : 1 piece 5m<W : 2 pieces	2.5m<W≤5m : 1 piece 5m<W≤7m : 2 pieces 7m<W : 3 pieces *W≤2.5m : 1 piece (window width is 690mm)	(GR-S) W<3m : 1 piece 3m ≤ W : 2 pieces (GR-W) W≤3m : 1 piece 3m<W≤6m : 2 pieces 6m<W : 3 pieces

	KR / KR-W	SR-N	NR-S
Window sheet lineup	Clear window sheet (for clear sheet) Insect repellent window sheet (for polypropylene sheet/ translucent insect repellent sheet/ orange sheet)	Clear window sheet (for clear sheet) Insect repellent window sheet (for polypropylene sheet/ translucent insect repellent sheet/ orange sheet)	
Bonding	Welding Hook and loop fastener (optional) *Polypropylene sheet are hook and loop fastener only.	Welding Hook and loop fastener (optional) *Polypropylene sheet and orange sheet are hook and loop fastener only.	
Window size	W690×H390(mm)	W690×H390(mm) Wide window H550mm (H560mm in case of polypropylene sheet)	
Window installable range	(KR) 1.97m<H (KR-W)1.9m≤H	1.7m≤H	
Window number	(KR) 1m≤W≤3m : 1 piece 3m<W : 2 pieces (KR-W) 1m≤W≤3m : 1 piece 3m<W≤6m : 2 pieces 6m<W : 3 pieces	1.5m≤W<2.5m : 1 piece 2.5m≤W : 2 pieces *W<1.5m : The window is not attached. (for polypropylene sheet) 1m≤W≤2.5m : 1 piece 2.5m<W : 2 pieces	

Sensor/Equipment Instrument

Basic sensor skills

■ Sensor lineup and example of installation



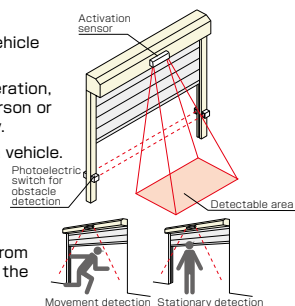
* GR-S&R: When the shutter starts with a microwave sensor, photoelectric switch needs 2 tier.

■ Feature of each sensors

For activation	Infrared sensor	This switch lets an object reflect back infrared rays and detects by a change of the quantity of the reflection. This is sensitive and early reaction.
	Microwave sensor	This switch exposes a microwave (electric wave) to an object and detects the movement of the object by a change of the microwave frequency. This detects only a moving object.
	Ultrasonic sensor	This switch exposes a ultrasonic wave to an object and detects a returning reflection wave.
	Loop switch	This switch detects metal thing such as vehicles by a change of the inductance of conducting wire buried in the floor.
	Laser scanner sensor	This switch lets an object reflect back a laser and detects by measuring the time when the reflection returns.
For safety sensor	Photoelectric switch (infrared-transparent method)	This switch detects an object by infrared interception. Use for obstacle detection mainly, but use for start.

■ Terms

Activation sensor	This detects the approaches such as a person or the vehicle automatically and opens a curtain.
Photoelectric switch for obstacle detection	This detects an obstacle at the time of the electric operation, and stop and reverse the curtain. Then prevent that a person or an obstacle are caught the curtain, as standard accessory.
Detectable area	The area where activation sensor can detect a person or a vehicle.
Movement detection	Detect a moving object. (Don't detect a stopping object.)
Stationary detection	Detect a stopping object. (Detect a moving object either)
Rest time	Time before a shutter curtain starting closedown again from a point in time when a person or a vehicle stood still in the detectable area.



Selection of activation sensor/switch

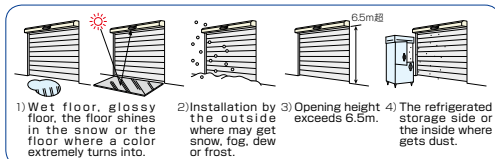
Please choose the most suitable model based on choice flow chart in confirmation of a consideration in the choice.

■ Consideration in the choice

- Don't use "activation sensor" as "safety sensor".
- In case of the passage of only human or human pushing a cart.

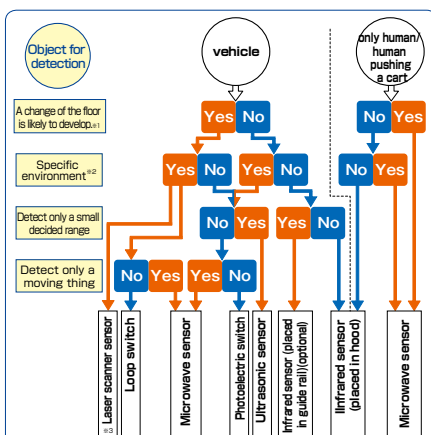
- Please use the model which can detect even if a person stands. (The model which does not have stationary detection is not possible.)
- Please use the model which can detect a wide area. (The model which only a small area can detect is not possible.)
- When you use a activation switch, be sure to set to alternate operation, and the semiautomatic operation is not possible.

- In the following cases, the infrared sensor is not possible, and please use other activation sensors or activation switch.



- Please do floor marking in the place that a activation sensor detects surely. Please inquire for the marking position.
- We strongly recommend setting of "indication lamp" to inform the start to close after the passage of the rest time.

■ Flow chart for selection



*1 It means there is polish with the snow or the puddle is in the detectable area.

*2 It means a place where is frequent snowy, having fog, dew, frost or dust, and in a refrigerator.

*3 It is possible to detect either "only human" or "human pushing a cart".

According to the size and application, please select the sensor.

■ Activation switches [Alternate operation/ Semi-automatic operation]

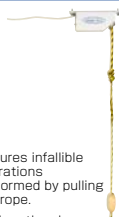
Single-button switch



(Inside) (Outside)

· The indoor and outdoor units constitute a set.

Pull switch



· Ensures infallible operations performed by pulling the rope.

※ There are also another design than the above.

Single-button Radi-Auto



· Allows remote control.

Three-button switch



· Allows users to easily identify which button should be pressed to open, close and stop the sheet shutter.

Non-contact switch



Sensor Amplifier

· Sanitary non-contact switch.

· You can set a detection angle with 7 levels.

■ Activation switches [Automatic operation]

Device	Photoelectric sensor	Infrared sensor (placed in hood)	Microwave sensor※1	Laser scanner sensor※6	Ultrasonic sensor	Loop switch
Appearance						
Voltage	DC12~240V AC24~240V	AC/DC12~24V	AC/DC12~24V	DC24V	AC100V AC200V	AC100V AC200V
Rest time	No limit	2sec, 1min, 10min, No limit	0~9sec	No limit	No limit	1min, 5min, 10min, 1h, 2h, 5h, 20h, No limit
Feature	· Less unpredicted detection. · No adjustment required.	· For general use and broad-area detection. · Easy to adjust. · Affected by changes in floor conditions.※2	· For freezers. · Resistant to natural elements. · Does not detect static objects.	· Wide detectable area Max width 9.9m × depth 9.9m · Double detectable area (activation, safety) · Solid detectable area	· Unaffected by changes in floor conditions.※2	· Does not detect humans. · Detects metals (dynamic or static). · Embedded into floor.
Detection object※3	Humans and animals	○	○	○	△	×
	Vehicles	○	○	○	○	○
	Static objects	○	○	×	○	○
Suitability to specific environments※4	Rain/snow/frost/fog	×	×	○	○	○
	Wind	○	○	○	×	○
	Sound	○	○	○	○	○
	Temperature change	○	○	○	×	○
	Ambient light	×	×	○	×	○
Setup	Floor changes	○	×	○	○	○
	Detection angle	Horizontal only	Adjust by turning the detector head.			
	Detection range	Fixed	Adjusted with the detector	Set with a remote control※8		Set using an amplifier
Anti-interference	Not necessary	Set with the detector	Not necessary		Set using an amplifier	Set with dedicated control panel

※1 After a static object has been detected in the detection area, the sheet shutter closes down once a preset time has elapsed.

Pay careful attention to the conditions of use prior to installation.

※2 The change of the floor means that the dry ground got wet in the rain or that the color of the carpet turned into black from red.

※3 ○: Detects △: Detects to some extent ×: Does not detect ※4 ○: Functions properly ×: The shutter may detect mistakenly and open.

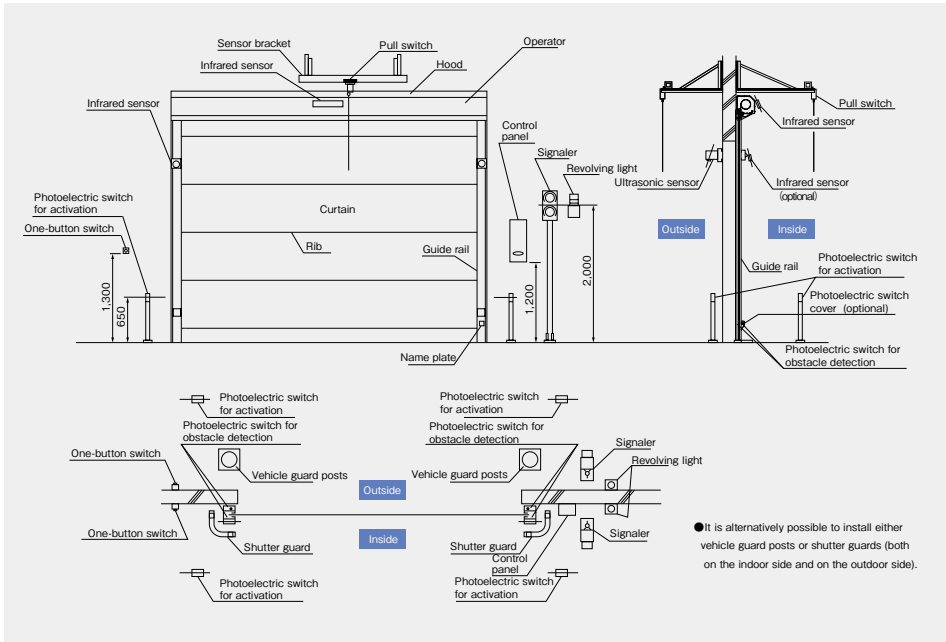
※5 Non-detective function in the parallel direction: Don't detect when a person and a vehicle pass the front of Quick Saver parallel. (See P.9.)

※6 Please install the sensor in the position that does not detect the bend of the sheet. It may detect the bend of the seat and remain in an opened state.

※7 When fog is thick, the sensor can't detect. ※8 The setting remote control of the laser scanner sensor is the same as a microwave sensor.

Sensor/Equipment Instrument

■ An example of device installation (GR-S)



■ Control panel

Name		DQC control panel	
Operator rate output power		0.75kw	1.5kw
Type		Brushless DC	
Dimensions (mm)		240(W)×620(H)×156(D)	240(W)×680(H)×156(D)
Specifications	Automatic mode	Alternate	○
		Semiautomatic	○
		Automatic	○
		Manual mode	○
		Interlock operation	○
		Half-open operation	○
Output	Standard	Signal for fully opened position	Voltfree 1c contact (250 VAC, 1A)
		Signal for fully closed position	Voltfree 1c contact (250 VAC, 1A)
		Open signal	Voltfree 1a contact (250 VAC, 1A)
		Close signal	Voltfree 1a contact (250 VAC, 1A)
	Optional	Abnormal signal	Voltfree 1a contact (250 VAC, 1A)
		Automatic mode signal	Active voltage
		Signaler with buzzer	Active voltage
		Revolving light	Active voltage

● Active voltage is same of the power supply voltage.

A DQC operator control panel is equipped standardly with a LCD monitor.

- 1.It's easy to see compared to traditional LED display.
- 2.Since all the situations of operation, such as the number of times of opening/closing and an error code, can check by monitor, management of a maintenance etc. is easy.



■ Indication lamp (optional)

- It promotes the safety at the time of the shutter passage.



Revolving light



LED indication lamp



Signaler

■ Vehicle guard posts (optional)

- It prevents contact with guide rail.



Vehicle guard posts



Shutter guard

■ Emergency power device (optional)

- It is a device opening Quick Saver to constant height at the time of power cut off.



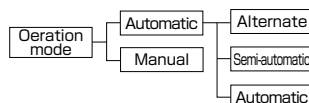
Emergency power device

※ There is the emergency power device except the upper figure.

Operation Modes

SHEET SHUTTER **QUICK SAVER**

The sheet shutter is operated in three automatic and one manual modes. The automatic modes comprise the alternate operation, the semi-automatic operation and the automatic operation. In the alternate operation mode and in the semi-automatic mode, you can choose an activation switch from among single-button switch, pull switch and single-button RadiAuto (remote control). In the automatic operation mode, you can choose the infrared sensor, microwave sensor or photoelectric switch (or the optional ultrasonic sensor and loop switch).



Alternate operation

Operate the start switch to open the sheet. After the passage, operate the start switch to close the sheet.

Activation switch	Open command	Opening the sheet	Passage / closing command	Closing the sheet	Control device required
One-button switch					● One-button switch×2
Pull switch					● Pull switch×2
One-button Radi-Auto					● One-button Radi-Auto×1

Semi-automatic operation

Operate the start switch to open the sheet. After the passage, the sheet is closed automatically.

(Note) In case of the passage of only human or human pushing a cart, don't use in Semi-automatic operation. In addition, the forklift is available because we consider it as a vehicle.

Activation switch	Open command	Opening the sheet	Passage / closing command (Variable between 0 to 30 seconds) Timer	Closing the sheet	Control device required
One-button switch					● One-button switch×2
Pull switch					● Pull switch×2
One-button Radi-Auto					● One-button Radi-Auto×1

Automatic operation

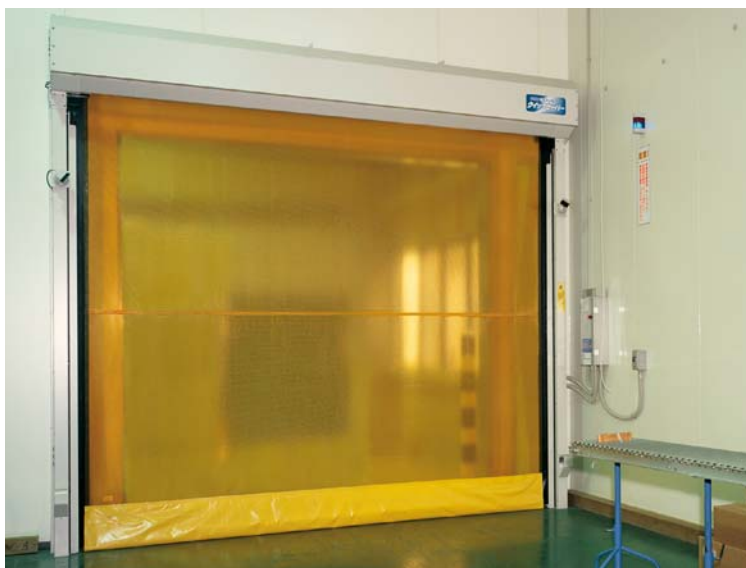
The sheet is opened automatically in response to a sensor signal. After the passage, it is closed automatically.

Activation switch	Open command	Opening the sheet	Passage / closing command (Variable between 0 to 30 seconds) Timer	Closing the sheet	Control device required
Photoelectric switch for activation					● Required number of photoelectric switch for activation (which varies depending on where the sheet shutter is installed)
Infrared sensor					● Required number of infrared sensors (which varies depending on where the sheet shutter is installed)
Loop switch					● Required number of loop switch (which varies depending on where the sheet shutter is installed)

Flexy SR



2.5m/sec opening speed and high airtight.
Automatic reset after impact.



Specification

- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Single phase 220VAC(DQC-753), Three phase 200VAC(DQC-1502)
Operator: brushless DC motor 0.75 kW (built in), 1.5 kW
Up to 60 times/hour
- **Operable frequency** 500 thousand cycles (200 thousand cycles for consumable parts)
- **Design operation cycles** except for some electric components. ● The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** See page P 14.
- **Guide rail material** Steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, hanger, roller, weight), guide rail, guide mouth, repairing guide



High airtight
Ultra-high speed
Automatic reset



Operation speed

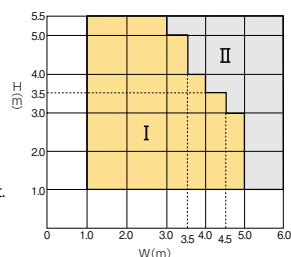
Power frequency (Hz)	Operation (kW)	Control panel	Speed (m/sec)	
			Open	Close
50/60	I 0.75 [1/15]	DQC-753 (DQC-751)	2.5	0.8 [H>2.8m]
	II 0.75 [1/25]	DQC-1502	1.5	0.5 [H≤2.8m]
		DQC-1502	2.5	

*The figure in parentheses " [] " shows the gear reduction ratio.
*The figure in parentheses " () " shows the control panel of single phase 100VAC (optional).

Caution

- When you don't use this products, be sure to leave the sheet fully open. The sheet might come off because of a gust.
- Break away/automatic reset is repeated frequently at the place where the shutter gets a strong wind more than the wind pressure, therefore the SR is not suitable because this may result in the guide rail and the sheet damage.

Design range

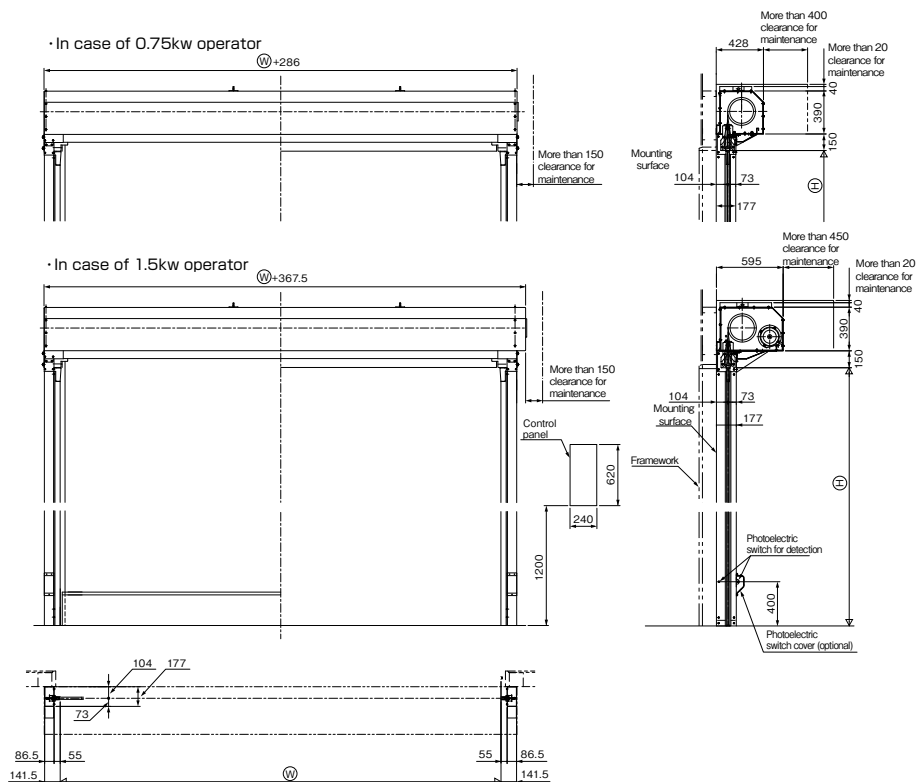


Eco-mark authorization
No.10128022
※Antibacterial sheet and Mesh sheet are not covered by eco

Products Lineup P6~7
Wind Resistance P13
Sheet Lineup P14
Sensor/Equipment Instrument P16~18
Operation Modes P19

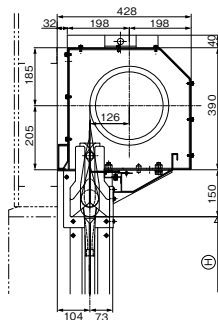
Reference drawing

Unit : mm

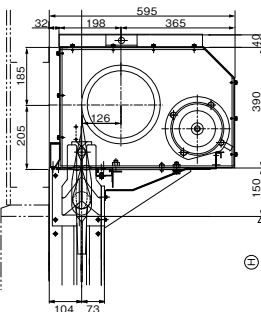


●Details for the hood

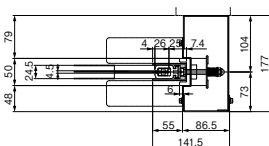
· In case of 0.75kw operator



· In case of 1.5kw operator



●Details of the guide rail





Flexy SR-F

Three new features ideal for food factories added to Flexy SR.

For food factories



Feature

Improved insect repellency

1 Translucent sheet insect repellent red

Repels 90% of insects.

Washable with water

2 Stainless steel guide rail

Rustproof guide rail easily washable with water. Sheet also washable with water.

(Note1) Never spray water around the switches, control panel, or other electrical parts. This could cause a breakdown and result in electric leaks or erratic operation.

(Note2) Since the sheet is made of soft polyvinyl chloride, it may whiten if it absorbs humidity for a long period of time, but whitening vanishes when dried.

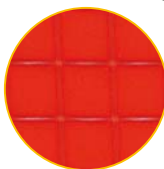
Little dust buildup

3 Inclined hood

The head and control panel are provided with inclined hoods where less dust accumulates and sticking substances are easily found.



▲ Control panel with inclined hood



▲ Insect repellent red sheet (There is the antibacterial sheet as an option.)



▲ Bottom brush (Optional)



▲ Hood (case assembly) with inclined hood



▲ Stainless steel guide rail

Specification

Unit : mm

- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Single phase 220VAC
Operator: brushless DC motor 0.75 kW (built in)
- **Operable frequency** Up to 60times/hour
- **Design operation cycles** 500 thousand cycles (200 thousand cycles for consumable parts)
except for some electric components. ● The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** Insect repellent red sheet (See page P 14.)
- **Guide rail material** Stainless steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, hanger, roller, weight), guide rail, guide mouth, repairing guide

Operation speed

Power frequency (Hz)	Operation (kw)	Control panel	Speed [m/sec]	
			Open	Close
50/60	I 0.75 [1/15]	DQC-753	2.5	0.8 [H>2.8m]
	II 0.75 [1/25]	(DQC-751)	1.5	0.5 [H≤2.8m]

* The figure in parentheses " [] " shows the gear reduction ratio.

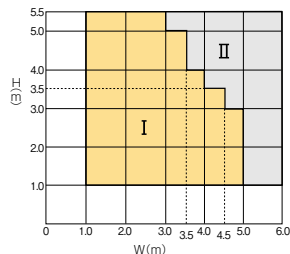
* The figure in parentheses " () " shows the control panel of single phase 100VAC (optional).

Caution

- When you don't use this products, be sure to leave the sheet fully open. The sheet might come off because of a gust.
- Break away/automatic reset is repeated frequently at the place where the shutter gets a strong wind more than the wind pressure, therefore the SR-F is not suitable because this may result in the guide rail and the sheet damage.

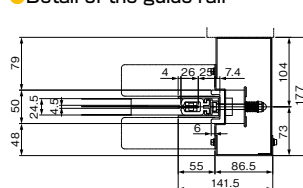
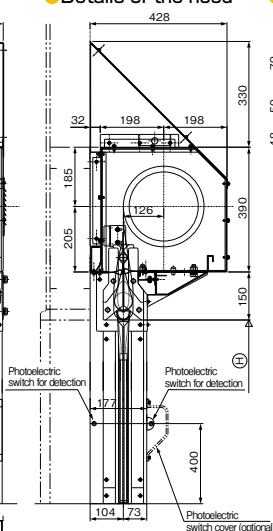
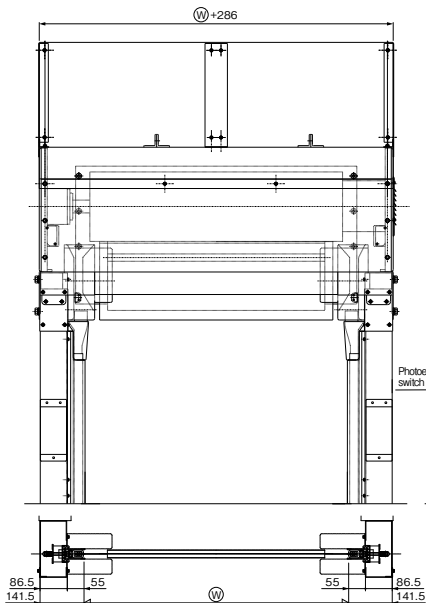
Reference drawing

Design range



Details of the hood

Detail of the guide rail



Flexy SR-W

Wide version of airtight and automatic resetting Flexy SR, up to 10 m wide (interior) and 8 m wide (exterior).
Opening speed of 1.2 m/sec.



Specification

- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Three phase 200VAC
Operator: brushless DC motor 1.5 kW
- **Operable frequency** Up to 60times/hour
- **Design operation cycles** 500 thousand cycles (200 thousand cycles for consumable parts) except for some electric components. ● The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** Polypropylene sheet [Deep orange] (See page P 14.)
- **Guide rail material** Steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, hanger, roller, weight), guide rail, guide mouth, repairing guide

Operation speed

Power frequency (Hz)	Operation (kw)	Control panel	Speed (m/sec)	
			Open	Close
50/60	1.5 [1/15]	DQC-1502	1.2	0.8 [H>2.8m] 0.5 [H≤2.8m]

※The figure in parentheses " [] " shows the gear reduction ratio.

Caution

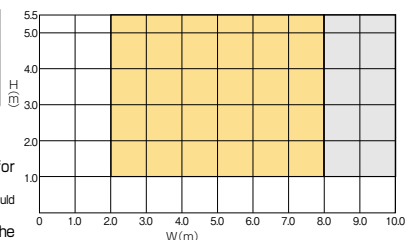
- SR-W cannot be used in an entry exclusively for pedestrians.

※ A person passing under the sheet when it is closing automatically could be injured by being struck by the bottom rib before the sheet stops.

- When you don't use this products, be sure to leave the sheet fully open. The sheet might come off because of a gust.

- Break away/automatic reset is repeated frequently at the place where the shutter gets a strong wind more than the wind pressure, therefore the SR-W is not suitable because this may result in the guide rail and the sheet damage.

Design range



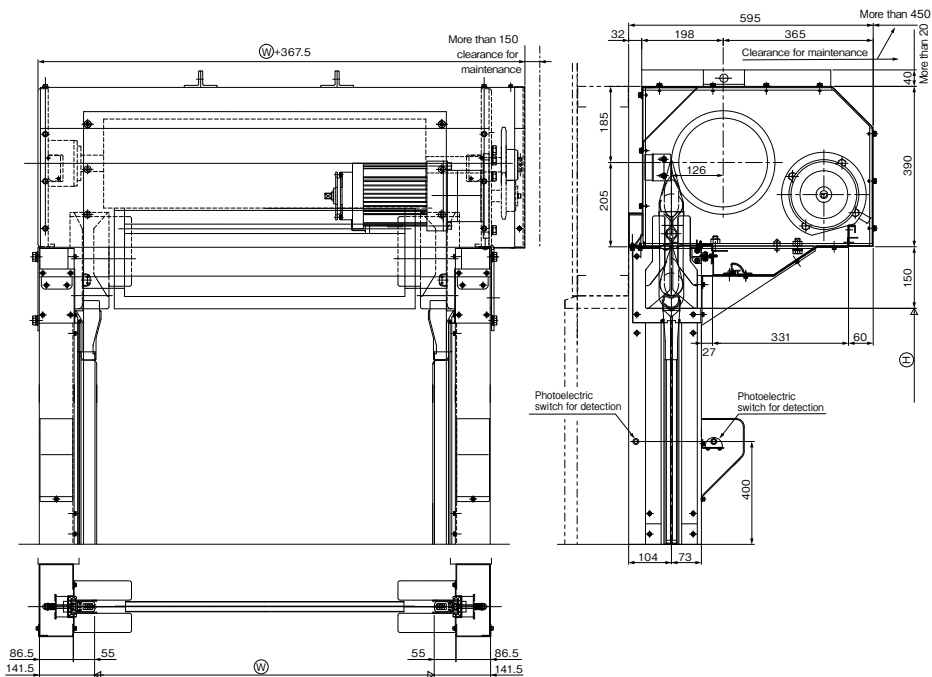
Interior only



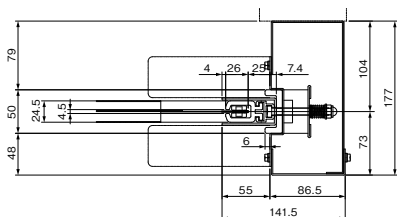
Reference drawing

Unit : mm

●Details of the hood



●Details of the guide rail



GR-S

Economy type at less initial cost.
Design range up to 6 m wide x 5 m high.



Specification

- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Single phase 220VAC
Operator: brushless DC motor 0.75 kW (built in)
- **Operable frequency** Up to 60times/hour
- **Design operation cycles** 500 thousand cycles (200 thousand cycles for consumable parts) (Non-flammable sheet is 120 thousand cycles) except for some electric components. ● The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** See page P 14.
- **Guide rail material** Steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, rib assembly[middle, bottom], joint rod, hanger), rail resin, guide mouth

Operation speed

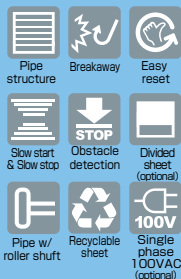
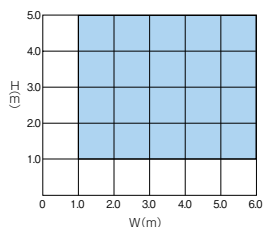
Power frequency (Hz)	Operation(kw)	Control panel	Speed (m/sec)	
			Open	Close
50/60	0.75 (1/25)	DQC-753 (DQC-751)	1.0	0.5

※ The figure in parentheses " () " shows the gear reduction ratio.
※ The figure in parentheses " () " shows the control panel of single phase 100VAC (optional).

Caution

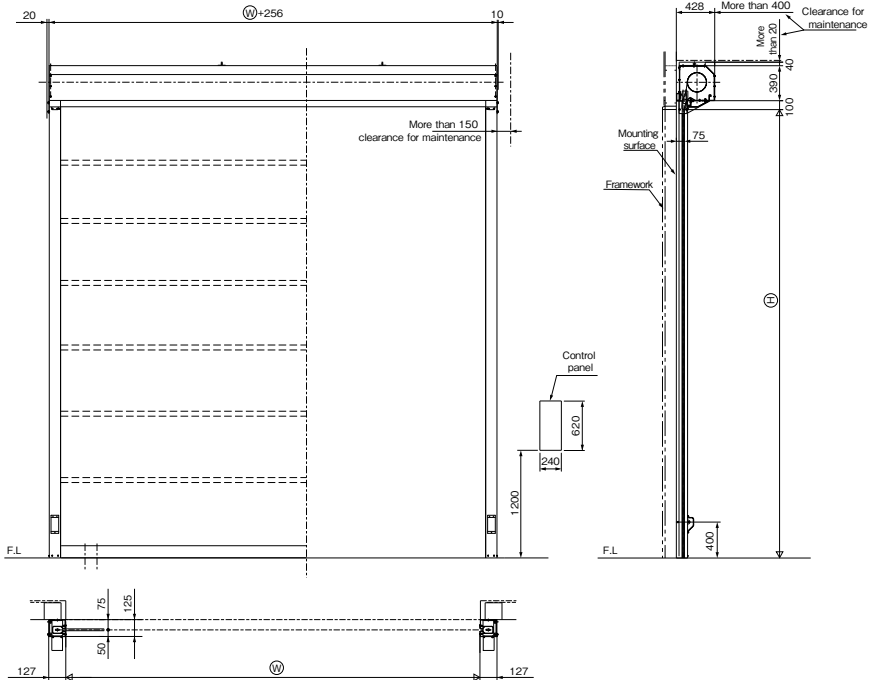
- GR-S cannot be used in an entry exclusively for pedestrians.
- ※ A person passing under the sheet when it is closing automatically could be injured by being struck by the bottom rib before the sheet stops.

Design range

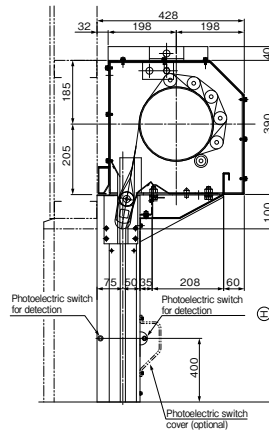


Reference drawing

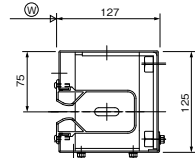
Unit : mm



Details of the hood



Details of the guide rail



GR-W

Wide type. Design range up to 10 m wide x 5.5 m high (interior) and 8 m wide and 5.5 m high (exterior).

Wide opening

Pipe structure



Specification

- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Single phase 220VAC(DQC-753), Three phase 200VAC(DQC-1502)
Operator: brushless DC motor 0.75 kW, 1.5 kW
- **Operable frequency** Up to 60times/hour
- **Design operation cycles** 500 thousand cycles (200 thousand cycles for consumable parts) (Non-inflammable sheet is 120 thousand cycles) except for some electric components. ●The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** See page P 14.
- **Guide rail material** Steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, rib assembly[middle, bottom], joint rod, scerw set for hanger), silent rail resin, guide mouth

Operation speed

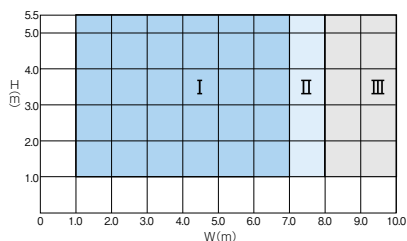
Power frequency (Hz)	Operation (kw)	Control panel	Speed (m/sec)	
			Open	Close
50/60	I 0.75 [1/15]	DQC-753	0.8	0.5
	II 1.5 [1/15]	DQC-1502	0.6	
	III			

*The figure in parentheses " [] " shows the gear reduction ratio.

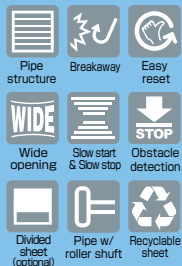
Caution

- GR-W cannot be used in an entry exclusively for pedestrians.
- * A person passing under the sheet when it is closing automatically could be injured by being struck by the bottom rib before the sheet stops.

Design range

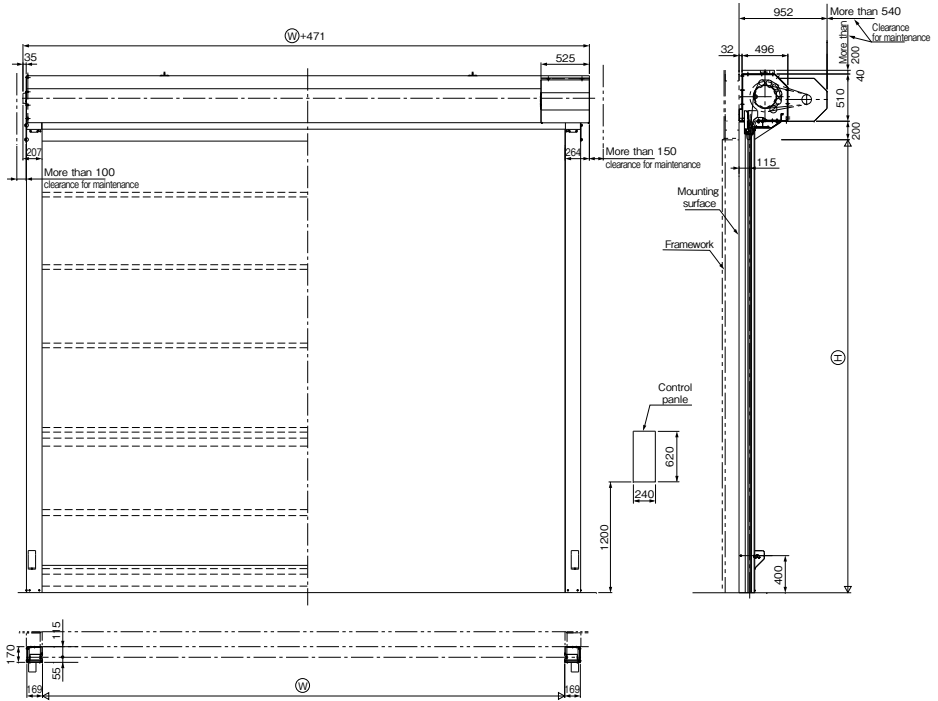


Interior only

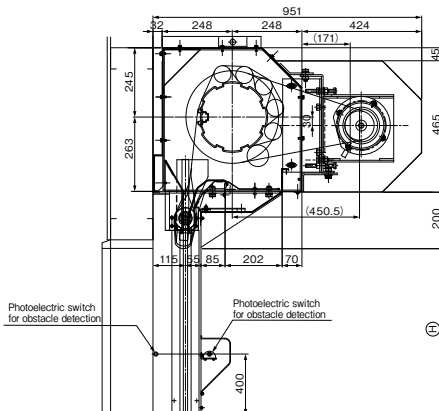


Reference drawing

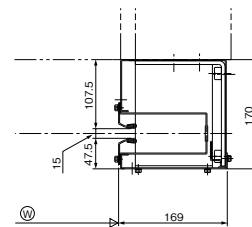
Unit : mm



● Details of the hood



● Details of the guide rail



KR

Wind resistance specification of operable wind load limit 250Pa (wind speed 20m/sec).

<Exiting Quick Saver GRS/GRW also becomes wind resistance specification only by exchange of a sheet.> However, correspondence of the size over the design range of KR cannot be performed.



Specification

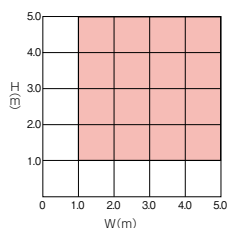
- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Single phase 220VAC
Operator: brushless DC motor 0.75 kW (built in)
- **Operable frequency** Up to 60times/hour
- **Design operation cycles** 500 thousand cycles (200 thousand cycles for consumable parts) except for some electric components. ● The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** See page P 14.
- **Guide rail material** Steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, rib assembly[middle, bottom], joint rod, hanger), rail resin, guide mouth

Operation speed

Power frequency (Hz)	Operation (kw)	Control panel	Speed (m/sec)	
			Open	Close
50/60	0.75 (1/25)	DQC-753	1.0	0.5

*The figure in parentheses " () " shows the gear reduction ratio.

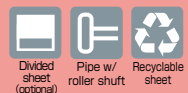
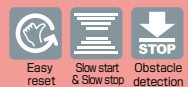
Design range



Caution

- KR cannot be used in an entry exclusively for pedestrians.

* A person passing under the sheet when it is closing automatically could be injured by being struck by the bottom rib before the sheet stops.



KR-W



Specification

- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Three phase 200VAC
Operator: brushless DC motor 1.5 kW
- **Operable frequency** Up to 60times/hour
- **Design operation cycles** 500 thousand cycles (200 thousand cycles for consumable parts)
except for some electric components. ● The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** See page P 14.
- **Guide rail material** Steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, rib assembly[middle, bottom], joint rod, scerw set for hanger), silent rail resin, guide mouth

Operation speed

Power frequency (Hz)	Operation (kw)	Control panel	Speed (m/sec)	
			Open	Close
50/60	1.5 [1/15]	DQC-1502	0.6	0.5

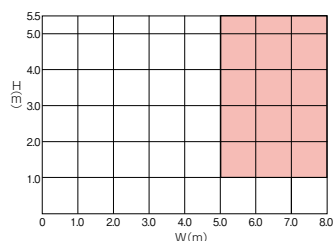
*The figure in parentheses " [] " shows the gear reduction ratio.

Caution

- KR-W cannot be used in an entry exclusively for pedestrians.

* A person passing under the sheet when it is closing automatically could be injured by being struck by the bottom rib before the sheet stops.

Design range



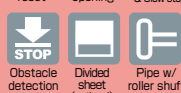
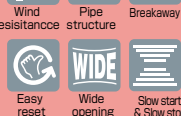
Wind resistance specification of operable wind load limit 250Pa (wind speed 20m/sec.) Ideal for wide openings up to 8m width x 5.5m height.

<Exiting Quick Saver GR-S/GR-W also becomes Wind resistance specification only by exchange of a sheet > However, correspondence of the size over the design range of KR-W cannot be performed.

Wide opening

Pipe structure

Wind resistance



Flexy SR-N

The compact type for exclusive use of the inside that is high in air-tightness at high-speed opening 2.5m/s.

High airtight

Ultra-high speed

Automatic reset

For interior



Ultra-high speed



High airtight



Free of ribs



Breakaway



Automatic reset



Slow start & Slow stop



Obstacle detection



Recyclable sheet



Compact installation



Single phase 100VAC (optional)



■ The wide window which can check an inside widely (optional)



■ The compact hood



■ The sheet bottom of the flexible material and design



Specification

- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Single phase 220VAC
Operator: brushless DC motor 0.75 kW (built in)
- **Operable frequency** Up to 60times/hour
- **Design operation cycles** 500 thousand cycles (200 thousand cycles for consumable parts) (Non-inflammable sheet is 120 thousand cycles except for some electric components. ● The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** See page P 14.
- **Guide rail material** Steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, hanger, guide block, weight), guide rail, guide mouth, repairing guide, repairing guide auxiliary resin

Operation speed

Power frequency (Hz)	Operation (kw)	Control panel	Speed (m/sec)	
			Open	Close
50/60	0.75[1/15]	DQC-753 (DQC-751)	2.5	0.8 [H>2.8m] 0.5 [H≤2.8m]

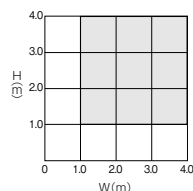
* The figure in parentheses " [] " shows the gear reduction ratio.

* The figure in parentheses " () " shows the control panel of single phase 100VAC (optional).

Caution

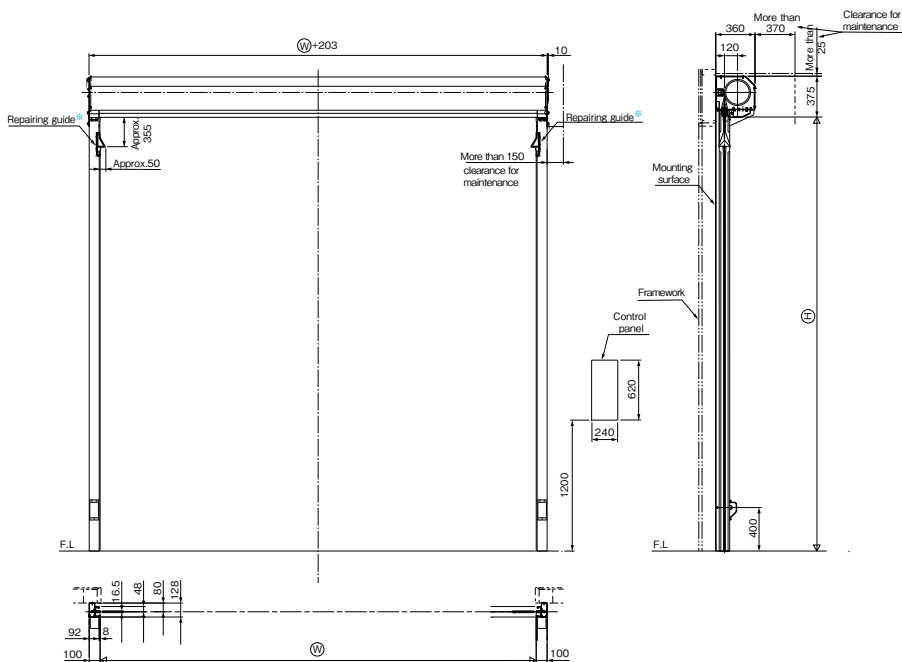
- When you don't use this products, be sure to leave the sheet fully open. The sheet might come off because of a gust.

Design range



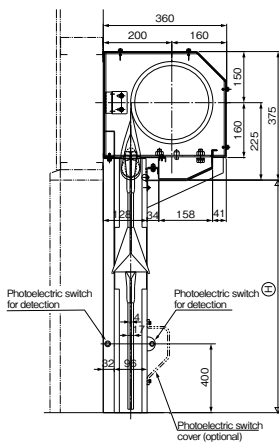
Reference drawing

Unit : mm

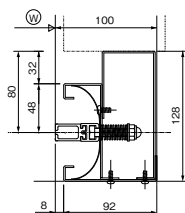


※ A repairing guide comes out in the one side approx. 50mm in the place where it fell approx. 355mm from the upper limit.

Details of the hood



Details of the guide rail



NR-S

Functions exclusively intended
for interior use.*
Ultra-high speed curtain type.

* Dimensions up to 2.2 m wide x
2.3 m high can also be installed as
exterior sheet shutters.

Ultra-high speed

For interior



Ultra-high
speed



Free of
ribs



Breakaway



Automatic
reset



Slow start
& Slow stop



Obstacle
detection



Recyclable
sheet



Compact
installation



Single
phase
100VAC
(optional)



Specification

- **Operation** Powered (with open/close switch, slow start and slow stop)
Power source: Single phase 220VAC
Operator: brushless DC motor 0.75 kW (built in)
- **Operable frequency** Up to 60times/hour
- **Design operation cycles** 500 thousand cycles (200 thousand cycles for consumable parts) (Non-inflammable sheet is 120 thousand cycles)
except for some electric components. * The figures above are not guaranteed values.
- **Wind resistance** See page P 13.
- **Sheet Lineup/Spec** See page P 14.
- **Guide rail material** Steel
- **Service conditions** Ambient temperature: -10 °C to +40 °C
Ambient relative humidity: RH 85% or below
Environmental conditions: except for coastal districts, chemical plants, other corrosive environments, and areas where condensation or freezing occurs.
- **Consumables** Sheet (sheet, hanger, guide block, weight), guide rail, guide mouth

Operation speed

Power frequency (Hz)	Operation (kw)	Control panel	Speed (m/sec)	
			Open	Close
50/60	0.75 [1/15]	DQC-753 (DQC-751)	2.5	0.8 [H>2.8m] 0.5 [H≤2.8m]

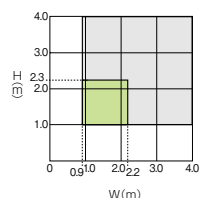
* The figure in parentheses " [] " shows the gear reduction ratio.

* The figure in parentheses " () " shows the control panel of single phase 100VAC (optional).

Caution

- When you don't use this products, be sure to leave the sheet fully open. The sheet might come off because of a gust.

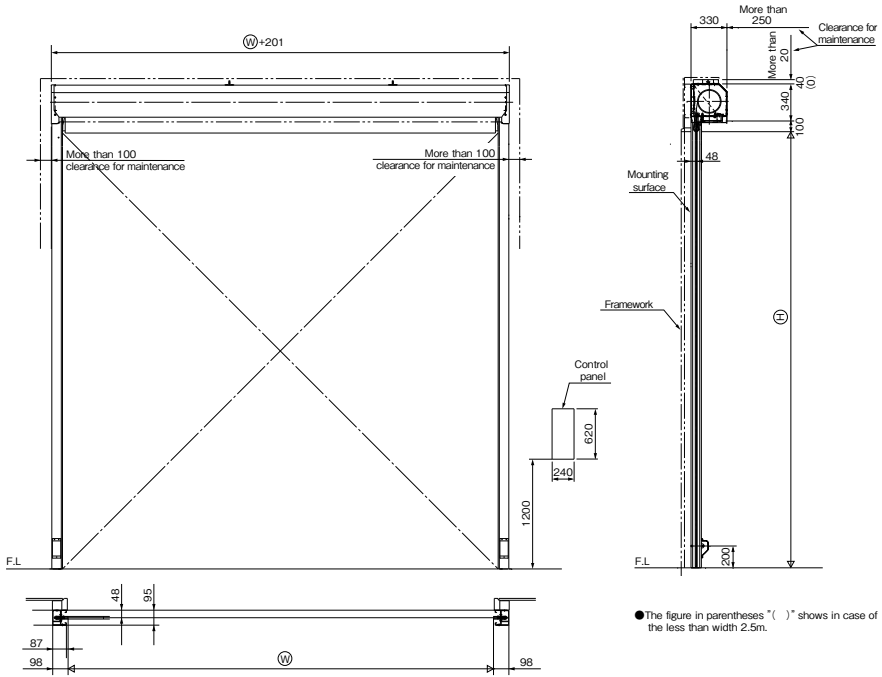
Design range



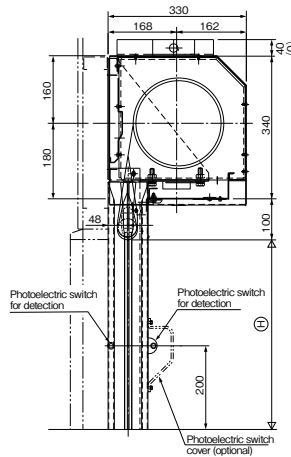
Interior only

Reference drawing

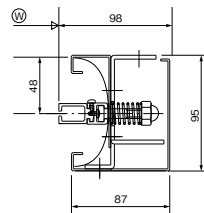
Unit : mm



Details of the hood

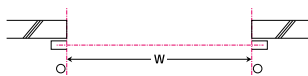


Details of the guide rail



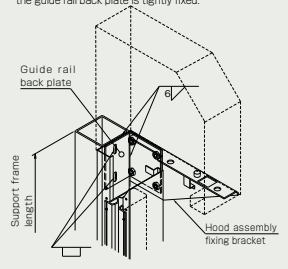
Design precautions

- 1 KR and KR-W model is recommended for any place when the sheet shutter is exposed to strong winds that exceed the operable wind load. If exposed to strong wind, the sheet shutter may open and close repeatedly after it is stopped. Possible places subject to strong winds include northern and western sides of buildings with no wind shielding. Moreover, the design durability number of times may fall in the strong wind area.
- 2 When installing a sheet shutter at any exterior opening, be sure to also install a rolling shutter with high wind resistance.
- 3 Even if there is a minor pressure difference between indoors and outdoors, any model without ribs is subject to sheet deflection. When Quick Saver is interlocked with a conveyor or other equipment, pay attention to the deflection to prevent it from coming in contact with the equipment.
- 4 Make sure that the building structure (walls and columns) and the poles are not installed within the clear width (W) so that the advantage of the breakaw.
- 5 Be sure to choose a model without ribs, either the SR or the NR-S, for any opening solely for human access.
- 6 The support frame must meet the following requirements.



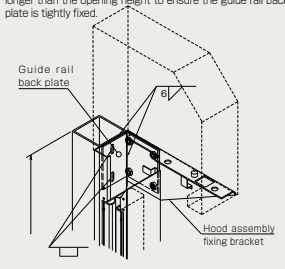
For SR·SR-F·SR-W·SR-N

- The load of the hood assembly is supported by the guide rail back plate and the hood assembly fixing bracket.
- The support frame must be square pipe 100mm x 100 mm x 2.3mm t, or larger with the length at least 150mm (SR-N:5mm) longer than the opening height to ensure the guide rail back plate is tightly fixed.



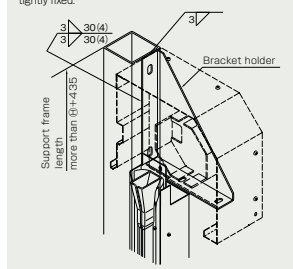
For GR-S·GR-W·KR·KR-W

- The load of the hood assembly is supported by the guide rail back plate and the hood assembly fixing bracket.
- The support frame must be square pipe 100mm x 100 mm x 2.3mm t, (GR-W: 150mm x 150mm x 4.5mm t) or larger with the length at least 95 mm (GR-W: 200mm) longer than the opening height to ensure the guide rail back plate is tightly fixed.



For NR-S

- The load of the hood assembly is supported by the bracket holder.
- The support frame must be square pipe 75mm x 75mm x 1.6mm t, or larger with the length at least 435mm longer than the opening height to ensure the bracket holder is tightly fixed.



- 7 Use an appropriate 10-meter-long cable to connect the DQC control panel to the operator. Make sure that the location of control panel is within the length of the cable to the drive side (operator).

Cautions for Operating

Many different measures are introduced to the Quick Saver given that it operates at high speed. For using the Quick Saver safely, please pay special attention to the following.

- 1 Do not let any vehicle or human through while the Quick Saver is opening or closing.
- 2 Do not stand still under the Quick Saver. Do not place any object under or around the Quick Saver.
- 3 Keep clear of the Quick Saver while it is opening or closing or even when it is closed. You could be in danger if it opens suddenly.
- 4 It is very dangerous if Quick Saver is opened when it is in contact with a forklift or carriage. Never park a vehicle near Quick Saver.
- 5 Do not leave sheets of paper or other articles that will sway in wind in the detection range of any sensor. Prevent vapor or oily smoke from direct contact with the Quick Saver. The sensor can detect it to activate Quick Saver.
- 6 Depending upon magnitude and direction of impact, the sheet and ribs may break. The sheet may also break when struck by a sharp projection.
- 7 Do not run into the Quick Saver, if the sheet is in full open position. You may be caught or hit the Quick Saver, because the Quick Saver may start to close suddenly, in case of Automatic operation / Semi automatic operation.

How to Take Care of the Shutter (cleaning)

< Only slightly dirt > Remove the dirt with a damp cloth then wipe the surface with a dry cloth.

< Very dirty > Use the following process to clean the door.

1. First rinse the dirt off with water.
2. For dirt that does not rinse off, dilute a neutral cleanser with warm water, and use it to wipe the door with a sponge or cloth.

(Caution) Never spray water around the switches, control panel, or other electrical parts.

This could cause a breakdown and result in electric leaks or erratic operation.

(Caution) Never use an acidic or alkaline cleanser because this can cause rust or discoloration.

(Caution) Never use a metal scrub brush or wire brush on the surfaces to avoid scratching.

3. Rinse the surface thoroughly so no cleanser or dirt remain.
4. Wipe the water off with a dry cloth.

- Leaving the door surfaces with debris or salt on the hood or guide rail could cause them to rust, so the door should be cleaned periodically.

<Cautions for products of stainless steel>

Stainless steel is less prone to rusting. However, this material will rust in some conditions. Since stainless steel is usually used without being finished with paint, frequent cleaning is necessary. Rust in the early stage can be removed by the process in the section <Very dirty>, "How to Clean the Shutter" above. If the product is heavily rusted, use a cleanser specifically for stainless steel, following the manufacturer's directions.

<Repainting of steel products>

The suitable frequency for repainting depends upon the kind of paint and environment. In general, once per 3 to 7 years is appropriate.

* 3 to 7 years are not the guaranteed life of paint.

<Reference for cleaning frequency> (Frequency per year)

Environment Material	Coastal	Industrial area	Urban	Rural
Steel (painted)	1 ~ 4	1 ~ 3	0.5 ~ 2	0.5 ~ 1
Stainless steel (without further finish)	10 ~ 20	6 ~ 10	4 ~ 8	2 ~ 4
Aluminum (clear finish)	1 ~ 4	1 ~ 3	0.5 ~ 2	0.5 ~ 1

(Note) In coastal areas and industrial districts, rust occurs more frequently.

Typhoons may cause salt damage also in inland areas as well as coastal areas.

To avoid such problems, clean thoroughly at more frequent intervals.

Recommendation for Maintenance (Periodic Inspection) Contract

In order to provide safe and comfortable operation over time, the Quick Saver must be periodically checked and maintained. In particular, doors installed in locations where traffic is heavy wear out more quickly than otherwise. Likewise, doors located in corrosive environments, such as coastal regions, in chemical plants and in waste incineration plants, do not last nearly as long. The Quick Saver includes the expendable parts. "Expendable parts" refer to parts loss of whose functional due to wear or deterioration might cause an accident involving casualties.

The frequency of periodic inspection cannot be uniformly set up since operating conditions vary depending on the frequency of use per day and the surrounding environment. However, at least semiannual inspections are required. Given the expertise required for a periodic inspection, we recommend periodic inspections be conducted under contract by an expert. Once a periodic inspection contract is signed, inspections are performed according to a checklist for periodic inspection and the inspection results reported. Should any abnormality be found with any expendable parts during inspection, actions are taken through discussion with the party to the policyholder, including component replacement, etc.

- Article 717 of the Civil Code of Japan stipulates that the owner or the occupant of a building shall be liable for any damage incurred by others that arises from defective maintenance of the building owned or occupied.

1.Items to be checked

- Checking of the door in open state ● Checking of the door in closed state ● Checking of the open/close mechanism
- Checking of the door during operation ● Lubrication

Each door unit is subject to specific analysis of checkpoints, based on a detailed list of items for inspection and checking. Periodic inspections are conducted according to this list.

2.Terms and conditions of the contract

Based on the scope of work set out in the checklist for periodic inspections, the parties to the contract determine the frequency of periodic inspection per year, the months when inspection should take place, the contract period and contract rates.

Reference for inspection frequency

Number of operation cycles per day	User inspection	Required number of periodic inspections (per year)
Less than 100	Inspection according to a user checklist	2
More than 100	Inspection according to a user checklist	To be determined through discussion

3.Reporting

Inspections are conducted based on periodic inspection standards and results of inspections performed in compliance with the standards are reported on performance, safety and function. Should any problem be found during an inspection, actions are taken based on discussion among the parties concerned.

- For a maintenance contract, please contact the Sanwa Shutter Corporation's sales office nearest you.
A representative will visit you to explain.

Product guarantee

Guarantee 1 year from the delivery date. However even with the one-year guarantee period, the guarantee does not cover cases where the number of operation cycles has exceeded 70000.

Guarantee If any problem occurs within the guarantee period even though instructions for proper use in the operation manual, product label and other cautionary notes were carefully followed, we will provide free repair or material only service except for the items excluded below.

Disclaimer (Even within the guarantee period, there will be a service fee for repairs necessitated by any of the following.)

1. Uncontrollable forces including natural calamities and other acts of God/force majeure (for example, storms, heavy rains, floods, high tides, earthquakes, subsidence, lightning, fires, tsunami (tidal waves), volcanic eruptions, etc).
2. Problems caused by natural phenomenon and environmental conditions (condensation of dew, freezing, vibrations due to wind, resonance, etc.).
3. Corrosion and other problems caused by a harsh environment (corrosion caused by salt air in coastal areas, corrosion caused by attachment of soot, smoke, various metallic particles, sulfuric gas and ammonia in the atmosphere and exhaust gas, etc. of cars, problems due to abnormally high and low temperature, high humidity, etc.)
4. Uncontrollable problems arising from any circumstances beyond expectation based on the specifications stated in the catalog and the operation manual.
5. Problems in the product due to factors not relating to the product, such as deformations in building structure, etc.
6. Problems caused when it is used for any purpose other than the intended purpose or in any manner that deviates from the intended purpose.
7. Problems caused by inadequate care, assembly, installation, management, maintenance, etc., by a third party that is not arranged by our company. (for example, corrosion caused by the mortar manufactured with sea sand and accelerating agent, corrosion and discoloration caused by the use of cleaning agent other than neutral cleanser, corrosion and discoloration due to improper care taken when under construction, etc.)
8. Problems caused after the customer assembles, installs, repairs, or remodels the product (including the removal of important parts).
9. Problems caused due to faulty operation and improper maintenance and management after handover.
10. Wear, damage, peeling of paint on parts that are in contact during operation, peeling of paint, color fading of paint due to passage of time, deterioration and discoloration of resin part, deterioration of plating and rust, and associated problems.
11. Phenomena that cannot be predicted and prevented with scientific knowledge and technologies that have been in practical application and problems arising from those phenomena.
12. Damage from small animals such as dogs, cats, birds, rats, insects, cockroaches, spiders, etc.
13. Vibrations, noise and similar sensory phenomena that have no impact on functions.
14. Problems and damages caused by illegal activities such as crime, etc.
15. Problems caused by a third party.

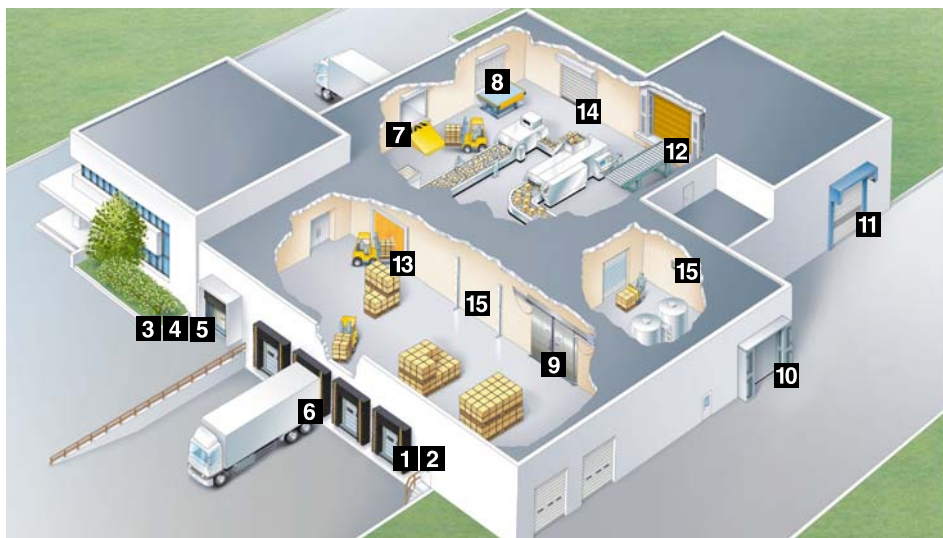
* There will be a service fee for repairs and replacements after the lapse of guarantee period.

* Depending on the terms and conditions mentioned above, the legal rights of the customer may not be subject to restriction. Hence, even after the lapse of the guarantee period, consult our company regarding any unclear or doubtful matters regarding repairs

Related product

Sanwa Shutter has an abundant variety of product which

Lineup



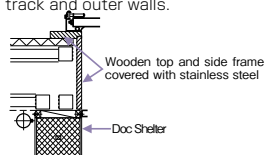
1 Insulated Overhead Door

Two types of NF Cool and NS chilled
 ● Impact absorbing panel "Shock Gird"
 Even if a forklift etc. contact/crash at the time of acceptance or delivery, it responds to a shock softly and restores.



2 Doc Shelter

The pad filling urethane which is installed in the shipment opening and takes up between the loading platform of a track and outer walls.



3 Air Shelter

The electromotive air seal which is installed in the shipment opening, encloses a track and the whole opening, and intercepts the open air.



4 Intercept

The new style shelter which attained reduction of the running cost. This product is possible from 2t truck to a container car.



5 Weather Gird/Weather Seal

The simple type which is made up by the head curtain, the side curtain, and the top & side frame.



is environment-friendly and optimizing work environment.

6 Doc Plate / Lip Plate

The optimal plate for light weight handling in the cart and basket car in case of non use a forklift.



◀ Retractable Doc Plate



◀ Low cost, inverted Lip Plate



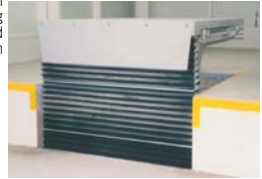
7 Doc Leveler

This equipment is installed in a platform and adjusts height with the back of the truck.



8 Table Lifter

This equipment is installed in a place with the level difference of the platform of the shipment opening of a refrigerator, etc., and makes a load go up and down perpendicularly.



9 Heat-insulating Door

It installs in the shipment opening of a refrigerator or a freezer. There are 2 types with the preset temperature in a warehouse.



10 Air Shutter

The air is blown off in the shape of curtain at high speed, and cuts off the inside and outside. There are 3 types, the object for insect repellent/ dust prevention, the object for deodorization, and the object refrigerator-freezers.



11 Super Ultra-high Speed Shutter

The Super Ultra-high Speed Shutter equipped with the function of a high-speed sheet shutter and metal shutters.



12 Quick Saver

The high-speed opening / closing sheet shutter with an abundant function.



13 Vinyflex

The vinyl door curtain which is good visibility and flexible go through.



14 Air-tight Rolling Steel Shutter

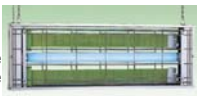
The shutter which gave high air-tight efficiency to the main components, such as Slats, Bottom Bar, Guide Rail, and Lintels.



15 Insect Trap

● Small-size Insect Trap "Mushipon"

An insect is guided by the ultraviolet rays which the insect likes, and "Mushipon" captures by exclusive catching insects paper.



● Large-size Insect Trap "Hotyu pole"

The insect gathering around the fluorescent light of the wavelength which an insect likes is captured with a transparent self-adhesive film.





- Specification are subject to change without notice for the purpose of quality increase.
- Please note that a color is somewhat different in printed matter and thing.



SANWA SHUTTER CORPORATION
<http://www.sanwa-ss.co.jp/>

● Where to call